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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/651,058	08/30/2000	Shoutarou Yoda	107156-00019	1169

7590 11/21/2003

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EXAMINER

NOLAN, DANIEL A

ART UNIT PAPER NUMBER

2654

DATE MAILED: 11/21/2003

12

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/651,058

Applicant(s)

YODA, SHOUTAROU

Examiner

Daniel A. Nolan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) See Continuation Sheet is/are rejected.
- 7) ☒ Claim(s) See Continuation Sheet is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 August 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Continuation of Disposition of Claims:

Claims rejected are 1-3 (and 5-6 if dependent), 7-9 (and 11-12 if dependent), 13-15 (and 17-18 if dependent).

Continuation of Disposition of Claims:

Claims objected to are 4 (and 5-6 as dependent), 10 (and 11-12 as dependent) and 16 (and 17-18 as dependent).

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Response to Arguments

2. Applicant's arguments, see page 3 paragraphs 3-5, filed 03 November 2003, with respect to the rejection(s) of claim(s) 1-2, 5-8, 11-14, 17 and 18 under 35 USC § 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Flanagan et al.

3. The indicated allowability of claims 3, 9 and 15 are withdrawn in view of the newly discovered reference(s) to Fedele. Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Flanagan et al

5. Claims 1, 7 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Flanagan et al (U.S. Patent 5,737,485).

6. Regarding claims 1, 7 and 13, the invention for *including microphone arrays and neural networks in speech/speaker recognition systems* of Flanagan et al reads on every feature of the claims for *speech recognition* as follows:

- Flanagan et al (2 in figure 1) reads on the feature of a *plurality of voice pickup means for picking up uttered voices*;
- Flanagan et al (14 in figure 2) reads on the feature of *determination means for determining a speech signal suitable for speech recognition from speech signals output from the plurality of voice pickup means*; and
- Flanagan et al (6 in figure 2) reads on the feature of *speech recognition means for performing speech recognition based on the speech signal determined by the determination means*.

Claim Rejections - 35 USC § 103

Flanagan et al & Fedeles

Claims 2-3, 6, 8-9, 12, 14-15 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Flanagan et al in view of Fedeles (U.S. Patent 4,627,091).

7. Regarding claim 2, 8 and 14; the claims are set forth with the same limits as claims 1, 7 and 13, respectively. While Flanagan et al processes *speech signals output*

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from the plurality of voice pickup means for which speech discrimination is requisite (2→6 in figure 2) and teaches using well-known means of determining voice, they do speak to the details of that function.

Fedele teaches the well-known feature that a signal with a *speech level equal to or higher than a predetermined speech level* (threshold or trigger, column 1 lines 27-32 & column 3 line 33) *and continues over a predetermined period of time is determined as the speech signal suitable for speech recognition* (illustrated by figure 1). It would have been obvious for Flanagan et al to employ the well-known criteria disclosed by Fedele to limit processing to actual voice and therefore avoid excessive attempts to resolve mis-recognized commands triggered from background noise anomalies.

8. With regard to claims 3, 9 and 15, the claims are set forth with the same limits as claims 1, 7 and 13, respectively. Flanagan et al processes relative SNR but is silent on a limit or threshold (see table 5 column 12 through to column 13 line 21). Fedele (column 1 lines 66-68) reads on the feature that *acquires an average S/N value and average voice power of each of the speech signals output from the plurality of voice pickup means* (column 6 line 60-68) *and selects that of the speech signal whose average S/N value and average voice power are greater than respective predetermined threshold values* (column 5 lines 36-45) *as the speech signal suitable for speech recognition* (see column 6 lines 33-38).

It would have been obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention to apply the method/teachings of Fedele to

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the device/method of Flanagan et al so as to limit the amount of data stored, to store only speech.

9. With regard to claim 6 (as depending on claims 1 or 2), claim 12 (as depending on claims 7 or 8) and claim 18 (as depending on claims 13 or 14); the claims are set forth with the same limits as claims 1-2, 7-8 and 13-14, respectively. The feature defining that the unsuitability of *other speech signals (than the speech signal suitable for speech recognition, that speech signal) whose average S/N value and average voice power become minimum is treated as a noise signal by the determination means* is well-known in the art of speech signal processing as taught by Fedele (column 2 lines 13-18) which would have made it obvious for Flanagan et al to incorporate the teachings of Fedele at the time of the invention to identify and process levels as noise so as to provide continuity for complex command sequences.

Flanagan et al, Fedele & Bowen

10. Claims 5, 11 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Flanagan et al and Fedele as applied to claims 1-2, 7-8 and 13-14 above, and further in view of Bowen (U.S. Patent 5,561,737).

11. With regard to claim 5 (as depending on claims 1 or 2), claim 11 (as depending on claims 7 or 8) and claim 17 (as depending on claims 13 or 14); the claims are set forth with the same limits as claims 1-2, 7-8 and 13-14, respectively. All the prior art of

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record contain a discrimination function that *treats those of the speech signals which are other than the speech signal suitable for speech recognition as noise signals*, as:

- Flanagan et al (12 in figure 2)
- Bowen (column 8 line 66 to column 9 line 1)
- Fedeles would simply disregard non-speech (column 3 lines 28-37).

It would have been obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention to apply the method/teachings of Bowen to the device/method of Flanagan et al & Fedeles with the well-known shared objective of all references being to differentiate between commands and noise.

Allowable Subject Matter

12. Claims 4, 10 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

13. Claims 5-6 (as they depend from claims 3 or 4), claims 11-12 (as they depend from claims 7 or 8) and claims 17-18 (as they depend from claims 5 or 16) are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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14. The following is a statement of reasons for the indication of allowable subject matter:

- Selection of a dominant microphone of an array by comparative means would be done were Everhart to employ the means of the closest cited prior art Bowen.
- Regarding claims 4, 10 and 16; the cited prior art of Flanagan et al and Fedele, in *determining speech signal candidates whose average S/N values and average voice powers are greater than the respective predetermined threshold values and which are candidates for the speech signal suitable for speech recognition, in accordance with the average S/N values and average voice powers necessarily determines a candidate order of those speech signals in order to rank the results. However, the further feature that subsequently sequentially executes speech recognition on the candidates in accordance with the candidate order from a highest candidate to a lower one* is neither anticipated nor is it found in obvious combination in the prior art of record.
- Claims 5-6 (when depending on claims 3 or 4), claims 11-12 (when depending on claims 9 or 10) and claims 17-18 (when depending on claims 15 or 16) would under those conditions all depend on claims that have been found allowable and so would they themselves allowable under the circumstances.

Conclusion

15. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Daniel A. Nolan at telephone (703) 305-1368 whose normal business hours are Mon, Tue, Thu & Fri, from 7 AM to 5 PM.

If attempts to contact the examiner by telephone are unsuccessful, supervisor Richemond Dorvil can be reached at (703)305-9645.

The fax phone number for Technology Center 2600 is (703)872-9314. Label informal and draft communications as "DRAFT" or "PROPOSED", & designate formal communications as "EXPEDITED PROCEDURE". Formal response to this action may be faxed according to the above instructions,

or mailed to: Commissioner of Patents and Trademarks
Washington, D.C. 20231

or hand-delivered to: Crystal Park 2,
2121 Crystal Drive, Arlington, VA,
Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to Technology Center 2600 Customer Service Office at telephone number (703) 306-0377.

Daniel A. Nolan
Examiner
Art Unit 2654

DAN/d
November 14, 2003


RICHEMOND DORVIL
SUPERVISORY PATENT EXAMINER